

Improved Design and Data Accuracy Through Modeling and Simulation of Wind Tunnel Facilities, Phase I

Completed Technology Project (2014 - 2014)



Project Introduction

Analytical Services & Materials, Inc. (AS&M) is proposing to develop and validate the procedures and modeling necessary to simulate, using computational fluid dynamics (CFD), an entire wind tunnel circuit. The application of CFD in wind tunnel circuit analysis is in its infancy and its use would allow for the design of better facilities and the development of better modifications of existing facilities to improve their efficiency and expand their capability. A better understanding of the facility flow characteristics obtained by the simulation would improve wall correction methodology and data accuracy from the facility. The proposed Phase I program will validate the methods against calibration data from the NASA Langley 14 x 22-ft Low-Speed Tunnel.

Primary U.S. Work Locations and Key Partners

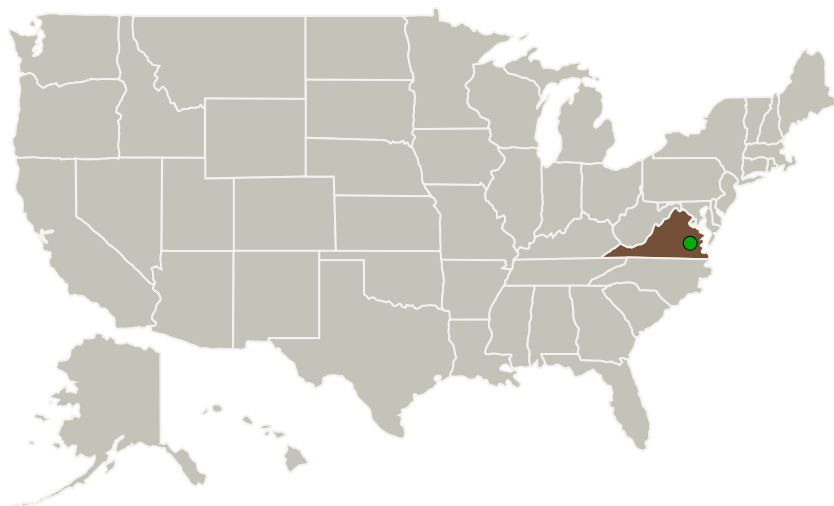


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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Analytical Services & Materials, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

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Organizations Performing Work	Role	Type	Location
Analytical Services & Materials, Inc.	Lead Organization	Industry Small Disadvantaged Business (SDB), Women-Owned Small Business (WOSB)	Hampton, Virginia
● Langley Research Center(LaRC)	Supporting Organization	NASA Center	Hampton, Virginia

Primary U.S. Work Locations

Virginia

Project Transitions

**June 2014:** Project Start**December 2014:** Closed out

Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/137560>)

Images

Project Image

Improved design and data accuracy through modeling and simulation of wind tunnel facilities Project Image (<https://techport.nasa.gov/image/136001>)

Project Management (cont.)

Program Manager:

Carlos Torrez

Principal Investigator:

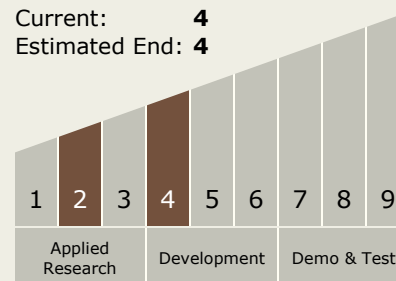
Sudheer Nayani

Technology Maturity (TRL)

Start: 2

Current: 4

Estimated End: 4



Technology Areas

Primary:

- TX15 Flight Vehicle Systems
 - TX15.1 Aerosciences
 - TX15.1.8 Ground and Flight Test Technologies

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System